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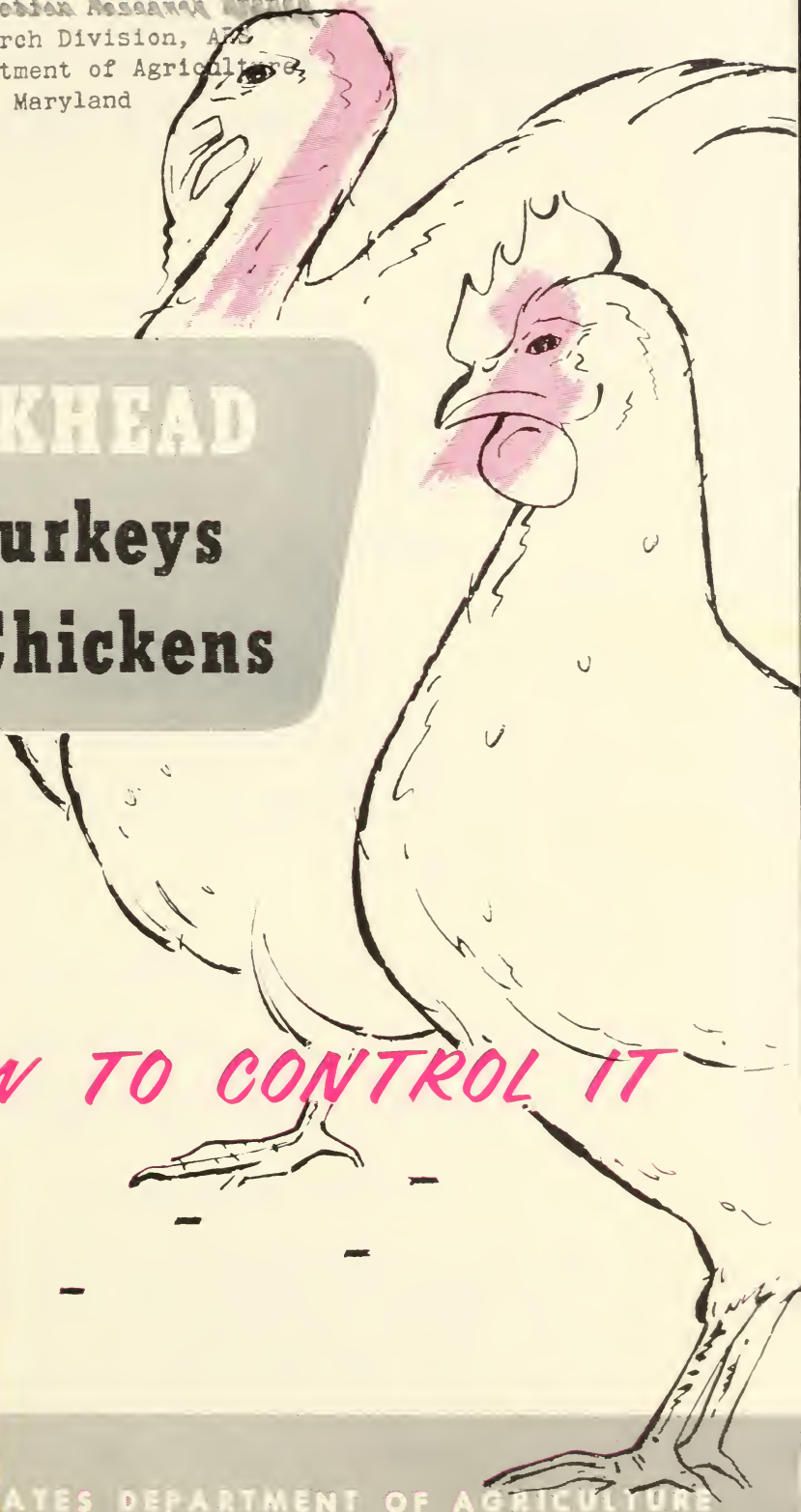
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BLACKHEAD of Turkeys and Chickens

HOW TO CONTROL IT

UNITED STATES DEPARTMENT OF AGRICULTURE



BLACKHEAD

of TURKEYS and CHICKENS

How To Control It . . .

Blackhead is a costly disease of turkeys. It is sometimes a serious disease of chickens.

It is caused by a microscopic parasite, *Histomonas meleagridis*, which attacks the ceca (blind guts) and liver of the birds. Other names for the disease are histomoniasis and infectious enterohepatitis.

Blackhead outbreaks are most likely to occur in the spring or fall. They usually are more serious in wet seasons than in dry.

LOSSES FROM BLACKHEAD

Turkeys

It is estimated that blackhead costs turkey growers about 4½ million dollars a year. Half of this is the value of turkeys that die from the disease. Other losses result from slow weight gains by affected turkeys, delays in marketing of birds that have recovered from the disease, and downgrading of carcasses. Some turkeys die from other diseases after they have been weakened by blackhead.

In a serious outbreak blackhead may kill more than half the turkeys in a flock and leave most of the survivors weakened. Turkeys of any age may get blackhead, but losses usually are greatest among birds 8 to 18 weeks old.

Chickens

The annual cost of blackhead to chicken growers is not known. However, reports of substantial losses from it have been increasing in recent years.

Healthy chickens that get the disease usually have a mild form of it and recover promptly. Chickens with lowered resistance may die in large numbers. Resistance may be lowered by other parasites and diseases, by vaccination, or by certain poor management practices.

HOW BIRDS GET IT

Apparently most blackhead infections are started by blackhead parasites (histomonads) contained in cecal worm eggs.

The cecal worm¹ is a parasite that lives in the ceca of chickens or turkeys. Birds that are infected with this worm pass large numbers of microscopic worm eggs in their droppings. If such birds

¹ *Heterakis gallinarum*.

also have blackhead, many of the worm eggs may carry histomonads.

A histomonad protected by the cecal worm egg can live for months—perhaps as long as the egg survives. In some localities the egg can survive 3 years, possibly longer.

Naked histomonads, which are also passed by birds with blackhead, are so fragile they can live outside a host for only a few hours. They rarely are capable of establishing a serious infection even if they are swallowed soon after being passed.

Turkeys and chickens get blackhead by picking up and swallowing cecal worm eggs infected with the blackhead organism. These eggs are on the soil or in feed or water that has been contaminated by the droppings of infected birds. Turkeys and chickens may pick up the eggs directly, or they may get them on their feet or feathers and take them in when they preen themselves.

Many chickens and some older turkeys may harbor both blackhead parasites and cecal worms without being noticeably affected. Blackhead outbreaks in turkeys often are a result of allowing turkeys to run with chickens, or of raising turkeys in houses or on land previously used by chickens. Outbreaks in young turkeys may result from raising them with older turkeys.

SIGNS OF THE DISEASE

Birds that have severe cases of blackhead usually have fairly characteristic outward symptoms. Although some of these symptoms accompany other diseases, you should suspect blackhead when you see them.

You may be able to find whether the disease is blackhead by making an internal examination of one or more of the birds that show outward symptoms. Easily recognized symptoms occur in the ceca, and sometimes in the liver, of birds in which the disease is well advanced.

Blackhead usually attacks only a few birds at first. Young birds often die 2 or 3 days after they show the first symptoms. Older birds may live several days longer before they die; or they may start to recover. Recovery usually takes several weeks if the infection is severe.

Outward Symptoms

Appearance of Birds

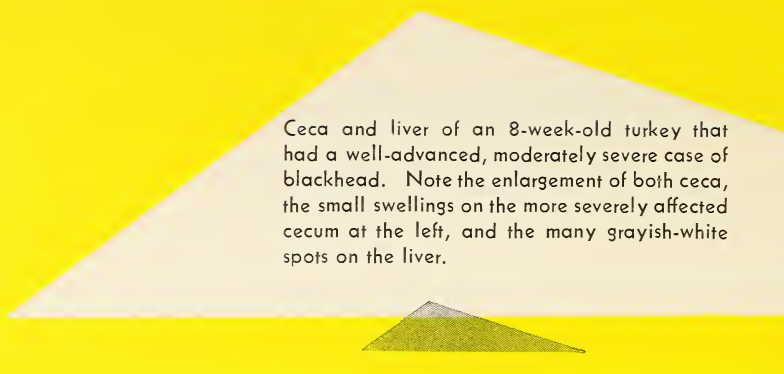
Affected birds stand with their heads tilted downward or drawn up to the body. Feathers are ruffled. Wings droop. Eyes are partly closed.

At first the birds may perk up if they are disturbed. If the infection becomes severe, they soon become indifferent to disturbances.

Sometimes the skin of the head, particularly in turkeys, becomes darkened—the symptom from which the disease gets its common name. This symptom, however, may also occur in other diseases.

Droppings

Turkeys in which the disease is well advanced often pass fluid, sulfur-colored droppings. This symptom seldom occurs in chickens.



Ceca and liver of an 8-week-old turkey that had a well-advanced, moderately severe case of blackhead. Note the enlargement of both ceca, the small swellings on the more severely affected cecum at the left, and the many grayish-white spots on the liver.

Internal Symptoms

Take a bird that has just died. Or kill one of the sickest ones. Cut the bird open to lay bare the two ceca and the liver.

Look for symptoms on the outside of both ceca and liver. Then cut open the ceca and examine the contents of each cecal cavity.

Symptoms to look for are described below. The photograph at right shows in natural color how the ceca and liver appear in a typical well-advanced case of blackhead.

Ceca

Blackhead may affect one cecum more severely than the other.

Signs to look for on the outside of each cecum are:

1. Surface reddened, roughened with numerous small swellings, or marked with rings that encircle the cecum. These symptoms may appear alone or in various combinations.
2. Cecum enlarged.

On the inside the cecal cavity may be filled with a curdled, a clotted, or a fluid material. If the bird is killed early in the course of the disease, the material will be greenish white and of the consistency of curdled milk. Later the greenish-white material may become clotted. If the bird lives long enough the clots may liquefy; when this happens the material is foul smelling, brown, and creamy.

Liver

Spots on the liver, another symptom, occur only after blackhead is well advanced; they may not occur even then because the liver is not always affected.

These spots are grayish white and roughly circular. They range from pinpoint size to half an inch in diameter. Occasionally they are larger. Spots next to each other may run together.



Spots are small at first and raised above the surface. As a spot enlarges the center flattens and shrinks so that the spot looks sunken. Large spots are often marked by rings, one inside another.

Visceral Membranes

Sometimes the membranes around the intestines and liver and those that line the visceral cavity become affected. If they are affected they have a slippery feel.

WHERE TO GET A DIAGNOSIS

If you suspect that birds have blackhead, usually the best thing to do is to take or send 2 or 3 of your sick birds to the nearest poultry-diagnostic laboratory.

At such a laboratory, poultry-disease experts will examine the birds and tell you whether they have blackhead or some other disease.

If you do not know where to take or send the birds for a diagnosis, ask your county agent or a veterinarian.

HOW TO HANDLE AN OUTBREAK

Take the following steps as soon as blackhead is diagnosed.

1. Isolate all sick birds. Remove them from the flock and keep them in a separate pen.

Dispose of all dead birds. Burn them, put them in a disposal pit, or bury them where they will not contaminate soil on which poultry will be ranged.

2. Quarantine all flocks from which sick birds have been removed. Do not put any other birds in these flocks. Do not transfer any birds out, except those that get sick.

All birds in the quarantined flocks have been exposed to blackhead parasites. It may be as long as 3 weeks from the time a bird swallows infective worm eggs until it shows symptoms.

3. Move quarantined birds to clean ground each week or as often as possible to reduce the chances of their picking up cecal worm eggs. Probably many of the quarantined birds harbor cecal worms. These birds either are passing cecal worm eggs or soon will be. Some of these eggs will carry blackhead parasites. In as short a time as 7 days the eggs may be mature enough to hatch when they are swallowed by a bird.

4. Keep a record of the houses, pens, and range areas that have been used by birds during quarantine. These places should not be reused until they are free from cecal worm eggs.

To rid houses, pens, or runways of cecal worm eggs, clean them thoroughly as discussed on the next page. Allow them to dry completely.

Cecal worm eggs will persist on range areas until they are destroyed naturally. Your farm adviser, county agent, or State experiment station may be able to tell you, from experience with prevailing practices, when your range may be safe for reuse.

5. If one person tends all flocks he should tend unaffected flocks first, quarantined flocks next, and sick birds last. Allow no traffic in the reverse order. Do not carry implements or utensils from the quarters of sick birds to those of healthy birds.

6. Keep feeders and waterers clean, and keep litter dry.

7. It may be helpful to treat flocks with one of the drugs discussed on page 8.

PREVENTION

Constant good management is the main blackhead preventive. It may be supplemented, if necessary, with a drug that reduces the number of cecal worms in the birds, or with drugs sold for the control of blackhead organisms.

Good Management

Turkeys

Raise turkeys away from other fowl, particularly chickens. If one person must tend both chickens and turkeys, he should take care not to carry chicken droppings to turkey flocks on his shoes or on equipment.

Raise young turkeys apart from older turkeys.

Houses.—If possible, brood turkeys in houses that have not been used by chickens. If turkeys must follow chickens, first clean the houses thoroughly, disinfect them, and allow them to become dry throughout.

Buildings with floors of earth are very difficult to make safe. Floors of unfinished concrete or wood or floors that are rough or broken will require special efforts in cleaning and disinfecting. They also need more time to become thoroughly dry than floors that are smooth and in good repair.

Keep litter clean and dry. Good ventilation will help to keep litter dry.

Runs.—If possible, use sun porches with wire floors. If not, it is desirable to have two or more runways connected with each house; use these runways in rotation.

In cool, moist climates turkeys should be moved to clean runways as often as every 7 to 10 days. In warmer, drier climates turkeys may be moved less often.

Runways should not be reused until they are clean and dry.

To clean concrete or slat runways thoroughly: Remove the droppings, then wash the runways with water that contains disinfectant: if blackhead has not been prevalent recently in your area, the disinfectant may be omitted.

There is no one best method for cleaning earthen runways. In areas where the climate is relatively dry, remove the top inch of soil along with the droppings, and replace with clean soil to maintain the desired ground level. In areas with considerable rainfall, remove 2 or 3 inches of soil with the droppings. Replace with gravel that will permit infective material to wash through, out of reach of the birds.

Feeders and waterers.—Keep feeders and waterers on wire platforms. These allow manure to fall through so that birds cannot pick it up or get it on their feet or feathers.

If wire platforms cannot be provided, change the location of feeders and waterers every 7 to 10 days to prevent accumulations of droppings that may contain infective cecal worm eggs.

Keep the soil or litter around feeders and waterers as dry as possible.

Range.—Provide ample range on land that has not been occupied by chickens and has not had poultry manure spread on it. Light, barren soils in warm, arid regions may be safe for turkeys a few weeks after chickens have used it, but heavier soils in moist climates may not be safe for years.

Do not range young turkeys on land recently occupied by older turkeys.

Fence range from low areas or streams that drain chicken yards because such drainage may carry in cecal worm eggs.

Move flocks as often as conditions in your area require. If blackhead is prevalent and the climate is cool and damp, you may need to move them at least every 10 days until they are 18 to 20 weeks old. In dry regions the turkeys may be moved less often. In very dry regions it may not be necessary to move the turkeys at all if soil around feeders, waterers, roosts, and shelters is kept dry.

If providing clean range is a problem on your farm, consult your local farm adviser, county agent, or State experiment station for advice on planning a program of land use or land reconditioning. Solutions to this problem vary with geographic area, climatic conditions, and economic considerations.

Chickens

It is easier to prevent blackhead outbreaks in chickens than in turkeys because chickens usually are more resistant to this disease.

In general, the same good-management practices given for preventing blackhead in turkeys can be used for chickens. These practices also help to reduce the danger of other parasitic diseases, some of which are more of a threat than blackhead to chickens.

In addition, protect chickens from unfavorable weather; and plan vaccinations so that they do not come when chickens have been weakened by other diseases or when they have been exposed to blackhead. Any combination of conditions that tax the resistance of young chickens is particularly dangerous.

Drugs

For Cecal Worms

In areas where blackhead is prevalent it is wise to reduce heavy cecal worm infection in flocks by treating the birds with phenothiazine.

For birds not getting roughage (those not yet on the range and those on barren range), mix one-half pound of phenothiazine with each 100 pounds of feed.

For birds getting roughage (those on range with abundant cover and those getting supplementary roughage), mix 1 pound of phenothiazine with each 100 pounds of feed.

As soon as cecal worms are discovered or suspected, feed the medicated ration for 5 to 7 days; then feed the regular ration for about 15 days. Repeat this pattern of feeding until about 3 weeks before the birds are to be marketed; do not feed phenothiazine during the last 3 weeks.

This treatment also leaves the range better suited for reuse because it reduces contamination of soil with cecal worm eggs.

For Blackhead Organism

Several drugs for the control of the blackhead organism are sold under various trade names. These drugs are sometimes useful when it is impossible to carry out every recommended management practice. None of them will be satisfactory, however, if all principles of good management are ignored.

If you plan to use one of these drugs, find out if possible whether it has been used in your area and what the results have been.

Use the drug only as directed by the manufacturer. All such drugs can be harmful if mishandled.

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